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The influence of manganese on switchgrass and pearl millet

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New research in Crop Science reports on the effects of a range of Mn availability on switchgrass

New research in Crop Science reports on the effects of a range of Mn availability on switchgrass. Source: Wikimedia Commons/SEWilco.

Manganese is an essential micronutrient and plays key roles in photosynthetic processes, including in NAD-malic enzyme (NAD-ME)-type C4 plants, as an activator of NAD-ME. Previous studies have indicated a benefit of high Mn availability during early growth of NAD-ME C_4 plants. However, little is known about Mn requirements of switchgrass.

In a recent article in *Crop Science*, researchers reported on the effects of a range of Mn availability on switchgrass, and in one of the three years, also compared the response of switchgrass to that of pearl millet, another NAD-ME C_4 plant.

Plants were grown under field conditions in pots filled with either washed sand, vermiculite, or perlite and fertilized with nutrient solutions ranging in [Mn] from 0 to

200 M.

The researchers found that shoot Mn was highly responsive to increasing Mn in the nutrient solution. However, an increase in seasonal biomass production in response to Mn addition was only observed in perlite for pearl millet and the upland switchgrass ecotype but not the lowland ecotype.

In contrast to previous research, biomass production did not increase in response to elevated Mn availability, indicating that NAD-ME plants may not require greater Mn availability than other C_4 subtypes or C_3 plants.

Dig deeper

Guo, Y., & Fritschi, F.B. (2020). Influence of manganese availability on switchgrass and pearl millet biomass production. *Crop Science*, *60*.
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